

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Gipson	§	
	§	
Re-examination No.	§	
	§	Group Art Unit:
Patent No.: 5,839,514	§	
	§	Examiner: Suchfield
Issued: November 24, 1998	§	
	§	
For: METHOD AND APPARATUS FOR	§	
INJECTION OF TUBING INTO WELLS	§	Attorney Docket No.: VITA-0006

Assistant Commissioner of Patents
Washington, D.C. 20231
Box: REEXAM

REQUEST FOR REEXAMINATION

Pursuant to the provisions of 35 U.S.C. §302 and 37 C.F.R. §1.510, Vita International, Inc. (hereinafter referred to as "Vita") requests the reexamination of claims 1-11 in U.S. Patent No. 5,839,514, (hereinafter referred to as the '514 patent) issued to Gipson, and assigned to Fleet Cementers, Inc. The basis for reexamination is that highly relevant and probative prior art was not considered during the '514 patent prosecution; this presents a substantial new question of patentability with respect to the claims identified in the '514 patent.

A detailed explanation of the pertinence of the prior art to each and every claim is included in this Request as well as a cut-up copy of the original patent showing single columns of the patent mounted on one side of a separate paper in accordance with 37 C.F.R. §1.510(b)(4). (Exhibit I)

A copy of this request and all accompanying papers has been served on the patent owner at the address provided for in 37 C.F.R. §1.33(c) by depositing the documents in an envelope "Express Mail Post Office to Addressee," number EL531086243US on April 24, 2000 to the

address listed below:

Thomas E. Sisson
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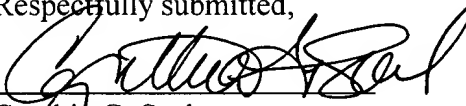
A check in the amount of \$2,520.00 to cover the filing fee for this request is enclosed herewith. In the event there is any deficiency in the filing fee associated with this request, please charge deposit account 50-0997/VITA-0006.

The name and address of the person making this request on behalf of Vita International, Inc. is:

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All correspondence should be sent to this address.

Respectfully submitted,


Cynthia G. Seal
Reg. No. 39,365

EXPRESS MAIL CERTIFICATE:

EXPRESS MAIL LABEL No.: ELS31 086243 US

Date of Deposit: April 24, 2000

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee: service under 37 CFR 1.10 on the date indicated above, addressed to: Commissioner of Patents and Trademarks, Washington, DC 20231


Ellen Peacock

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 - Exhibit V – U.S. Patent 4,673,035 to Gipson

I. Prior Art References To Be Considered During Reexamination

The following highly relevant and probative prior art presents substantial new questions of patentability with respect to the claims identified in the '514 patent.

(A) Prior Art References not of Record in the '514 Patent Prosecution

(1) Vita Brochure, published May 7, 1996. (Exhibit II)

(2) Composite Catalog Advertisement, published May 7, 1996. (Exhibit III)

(B) Prior Art References of Record in the '514 Patent Prosecution

(1) U.S. Patent 5,765,643 to Shaaban issued June 16, 1998 based on an application filed May 6, 1996. (Exhibit IV)

(2) U.S. Patent 4,673,035 to Gipson issued June 16, 1987 based on an application filed June 6, 1986. (Exhibit V)

II. Substantial New Question of Patentability

A. Prior art references not of record in the '514 patent prosecution

1. Vita Brochure (Exhibit II)

The Vita brochure was made available to the public at least as early as May 7, 1996 as evidenced by the affidavit executed by the president of Vita. (Exhibit IIA)

Vita brochure discloses a coiled tubing unit having a tubing injector reel rotatably mounted on a mast, a tubing storage reel mounted on a frame, and a tubing reel cradle having side frames that are hydraulically opened to facilitate easy change out of tubing storage reels. The injector reel has multiple adjustable tensioned rollers to hold the tubing in the injector groove.

2. Composite Catalog advertisement (Exhibit III)

Composite Catalog advertisement was made available to the public on at least as early as May 7, 1996 as evidenced by the affidavit executed by the president of Vita International, Inc. (Exhibit III A)

The Composite catalog advertisement discloses a coil tubing unit having a removable tubing storage reel as show in the photo on page 1. The text describes a self-loading storage or work reel, facilitating tubing reel change out. The text also describes the tubing gripping system as a composite or lebus style grooving with hold down rollers with manual or hydraulic roller adjustment.

B. Prior art references of record in the '514 patent prosecution

1. U.S. Patent 5,765,643 to Shaaban issued June 16, 1998 based on an application filed May 6, 1996. (Exhibit IV)

Shaaban teaches an apparatus for injecting tubing into wells having a tubing storage means and an injector device having a means for applying variable pressure to the coil tubing. provided a tubing injector comprising a base and an injector device mounted on the base. The injector device is rotatably mounted on a frame. A plurality of guide means are used to guide the tubing along the perimeter of the injector device. A biasing means is used to bias the plurality of guide means toward the tubing. There is a tubing storage means mounted on the base with tubing stored thereon. There is a drive means for rotating the injector device connected to the frame and a tubing straightener for straightening the tubing as it is injected into and retrieved from the well.

Figs. 4a and 4b show a bracket 12 having an actuator 48 for varying the pressure of the roller 32 against the tubing as it is injected into and retrieved from the well.

2. U.S. Patent 4,673,035 to Gipson issued June 16, 1987 based on an application filed June 6, 1986. (Exhibit V)

Gipson discloses a tubing injector having an injector reel with a means mounted around a portion of the injector reel for exerting pressure against the circumference of the reel to provide positive engagement of the tubing by the injector reel when the reel is rotated to pull the tubing off or return the tubing to tubing storage reel. (col. 3, lines 55-65) A tubing straightening means is provided to straighten the tubing after it is pulled off the tubing storage means. A vertical support bracket 220 supports member 190 which extends around the circumference of the injector reel. Axles 192 are journaled in support member 190, each of the axles bearing a pneumatic tire or roller 188. (col. 5, lines 52-62 and Fig. 5). Member 190, axles 192 and rollers 188 serve as a means to exert pressure against tubing 18 when the tubing is directed into a channel in the injector reel. The amount of pressure applied to the top surface of the tubing 18 as it is carried around the circumference of the injector reel 25 can be changed manually by increasing or decreasing the air pressure of the pneumatic tires which make up the rollers 188. (col. 10, lines 1-6)

III. Claim Analysis

Claim 1

An apparatus for injecting coiled tubing into a hole in the earth's surface comprising:
a frame having a front end and a back end;
a tubing storage spool removably mounted on said frame at said back end and having said coiled tubing stored thereon;
a mast pivotally mounted on said frame;
an injector reel rotatably mounted on said mast, said injector reel pivotable from a first stored position at said front end to a second tubing injecting position;
a drive mechanism attached to said injector reel to rotate said injector reel; and
a hold down assembly mounted around a portion of the circumference of said injector reel for exerting a pressure against said coiled tubing over more than 90° of said injector reel when said injector reel is in said second operative position and said coiled tubing is directed between said hold down assembly and said circumference of said injector reel to provide positive engagement of said tubing by said injector reel when said injector reel is being rotated to pull said tubing off of said tubing storage spool or return said tubing to said tubing storage spool.

The claim as written requires the following elements that are well known in the art:

a frame; an injector reel; a drive mechanism to rotate the injector reel; and a hold down assembly mounted around a portion of the circumference of the injector reel for exerting pressure against the coiled tubing over more than 90 ° of the injector reel, to provide positive engagement of the tubing when the tubing is being pulled off of or returned to the tubing storage spool.

Gipson 4,673,035 Figure 5, shows a coil tubing injector reel 25 and “a pneumatic tire of roller 188...serves as a means to exert pressure against tubing 18 when tubing 18 is directed into the channel 193 in rubber insert 191 between the injector reel 25 and the rollers 188. “the bottom surface of tubing 18 within the channel 193 of the rubber insert 191 is positively engaged with the rubber insert 191 by means of compression applied against the top surface of tubing 18 by roller 188.”(col. 5 lines 59-66)

The remaining elements:

*a tubing storage spool removably mounted on said frame at said back end and having said coiled tubing stored thereon;
a mast pivotally mounted on said frame;
an injector reel rotatably mounted on said mast, said injector reel pivotable from a first stored position at said front end to a second tubing injecting position.*

are disclosed in the Composite catalog advertisement.

The figure on page 1 of the Composite catalog advertisement shows the tubing storage spool being delivered to a cradle on a frame. The accompanying text refers to a self-loading reel that reels without a crane, thus “facilitating tubing reel change out”.

Page 1 of the Composite catalog advertisement also shows a mast pivotally mounted on the frame and the injector reel rotatably mounted on the mast. The device shown in the figures has “an injector reel rotatably mounted on said mast,” and “said injector reel pivotable from a first stored position at said front end to a second tubing injecting position.” Page 2 of the Composite catalog shows a schematic drawing of a coil tubing unit with a mast pivotable from a stored position to a tubing injecting position and a reel rotatably mounted on the mast.

Therefore, claim 1 is anticipated by the above reference.

Claim 2

*The apparatus of claim 1 wherein
said hold down assembly further comprises a bracket attached to said circumference of said injector reel, said bracket having an adjustment member for varying the pressure of a roller against said coiled tubing.*

Claim 2 adds the limitation of a bracket having an adjustment member for varying pressure of a roller against the coiled tubing. Vita Brochure, page 3 discusses “multiple adjustable tensioned rollers” for holding the tubing in the groove of the injector reel. All of the photos in the Vita brochure show a plurality of brackets around the circumference of the reel

designed to hold the “multiple adjustable tensioned rollers.” In addition, the schematic figure on page 3 shows brackets holding rollers around a portion of the circumference of the injector reel.

U.S. Patent 4,673,035 incorporated by reference by the patentee, states “The amount of pressure applied to the top surface of the tubing 18 as it is carried around the circumference of the injector reel 25 by the rubber insert 191 can be changed by increasing or decreasing the air pressure of the pneumatic tires which make up the rollers 188.” (col. 10, lines 1-6)

In addition, Shaaban Figs. 4a and 4b show a bracket 12 having an adjustment member 48 for varying the pressure of the roller 32 against the tubing on the injector reel as it is injected into and retrieved from the well.

Therefore, claim 2 is anticipated or in the alternative obvious in light of the above references.

Claim 3

The apparatus of claim 1 wherein said second tubing injecting portion positions said injector reel above said back end of said frame, said mast extending generally perpendicular to said frame, and said coiled tubing exiting said apparatus generally perpendicularly to said surface.

Claim 3 adds the limitation of positioning the injector reel above the frame where the mast is generally perpendicular to the earth’s surface. Page 1 of the Vita brochure shows an injector reel positioned above the back end of a frame with the mast extending generally perpendicular to the frame and the coiled tubing exits the injector reel generally perpendicular to the ground’s surface.

Therefore, claim 3 is anticipated in light of the above reference.

Claim 4

The apparatus of claim 1 wherein said second tubing injecting position positions said injector reel above said front end of said frame, and said coiled tubing exits said apparatus at an angle less than 90° to said surface.

Claim 4 adds the limitation of positioning the injector reel over the frame such that the coiled tubing exits the reel at an angle of less than 90° to the earth's surface. The Vita brochure page 4 shows a schematic drawing of an injector reel that is adjustable to a position, shown in dashed lines, that would allow the tubing to come off the reel at an angle of less than 90° with the earth's surface.

Therefore, claim 4 is obvious in light of the above reference.

Claim 5

The apparatus of claim 1 further comprising a first tubing stabilizer assembly mounted within said frame and a second tubing stabilizer mounted above said hole in said surface.

Claim 5 adds the limitation of a first and second tubing stabilizer. Vita brochure page 3, Figure 5 shows a first tubing stabilizer and a and a second tubing stabilizer in red. Tubing stabilizers are a necessary when raising the injector reel above the wellhead because the coiled tubing tends to flex and bend if it is not stabilized in some fashion. Therefore, putting a stabilizer on the tubing that extends any significant distance from the injector reel into the well head is necessary to keep the tubing from flexing away from the wellhead before it is injected.

Therefore, claim 5 is rendered obvious in light of the above reference.

Claim 6

The apparatus of claim 1 wherein said tubing storage spool is further removably mounted to an adjustable cradle frame having opposed pivotable bullnose arms.

The Composite catalog advertisement, page 1 drawing shows a tubing reel cradle and

side frames that are hydraulically opened to facilitate easy change out of reels. The photo also shows that the side frames have pivotable bullnose arms for receiving the tubing storage reel.

Therefore, claim 6 is rendered obvious in light of the above reference.

Claim 7

The apparatus of claim 1 wherein said opposed pivotable bullnose arms are horizontally slidably attached to said cradle frame to accept a range of storage spool widths.

There is no antecedent basis for the term “opposed pivotable bullnose arms” in claim 7, however, for purposes of this analysis, the Requestor will assume that claim 7 was intended to depend from claim 6.

The Composite catalog advertisement shows and describes a tubing reel cradle having side frames with opposed pivotable bullnose arms that are hydraulically opened to facilitate easy change out of tubing storage reels. It would have been obvious to one having ordinary skill in the art to modify the tubing reel cradle such that it could accept a range of storage spool widths, because different sizes of tubing are used and would require different sized reels to accommodate the same length of tubing.

Therefore, claim 7 is rendered obvious in light of the above reference.

Claim 8

*The apparatus of claim 1 wherein said **opposed pivotable bullnose arms** are vertically slidably attached to said cradle frame to accept a range of storage spool diameters.*

There is no antecedent basis for the term “opposed pivotable bullnose arms” in claim 7, however, for purposes of this analysis, the Requestor will assume that claim 7 was intended to depend from claim 6.

The Composite catalog advertisement shows and describes a tubing reel cradle having side frames with opposed pivotable bullnose arms that are hydraulically opened to facilitate easy

change out of tubing storage reels. It would have been obvious to one having ordinary skill in the art to modify the tubing reel cradle such that it could accept a range of storage spool diameters, because different sizes of tubing are used and would require different sized reels to accommodate the same length of tubing.

Therefore, claim 8 is rendered obvious in light of the above reference.

Claim 9

The apparatus of claim 1 wherein said drive mechanism is of adjustable length to accommodate a range of storage spool diameters.

The drive mechanism of claim 1 relates to the injector reel and the injector reel does not accommodate a range of storage spool diameters. However, if the patentee meant to refer to the drive mechanism on the tubing storage reel, it would have been obvious to one of ordinary skill in the art that tubing comes in many sizes and the tubing storage reel could be made of various sizes to accommodate the different sizes of tubing. Therefore, the drive mechanism would inherently have to be adjustable to accommodate different storage spool diameters.

Therefore, claim 9 is rendered obvious in light of the above reference.

Claim 10

An apparatus for injecting coiled tubing into the earth's surface comprising:
a frame having a front end and a back end;
a tubing storage reel removably mounted on said frame and having coiled tubing stored thereon;
an injector reel rotatably mounted on said frame;
a mast pivotally mounted on said frame;
a drive mechanism attached to said injector reel to rotate said injector reel;
a multiplicity hold down mechanism mounted around a portion of the circumference of said injector reel for exerting a variable pressure against said coiled tubing when said coiled tubing is directed between said hold down assembly and said circumference of said injector reel to provide positive engagement of said tubing by said injector reel when said injector reel is being rotated to pull said tubing off of said tubing storage

reel or return said tubing to said tubing storage reel, each of said hold down assembly further comprising:
a bracket attached to said circumference of said injector reel, said bracket having an adjustment member for varying the pressure of a roller against said coiled tubing; and
a tubing straightener mechanism attached to said injector reel.

Claim 10 incorporates all of the limitations of claims 1 and 2 and adds the limitation of a straightener mechanism. As discussed with reference to claims 1 and 2, Vita Brochure, page 3 discusses "multiple adjustable tensioned rollers" for holding the tubing in the groove of the injector reel. All of the photos in the Vita brochure show a plurality of brackets around the circumference of the reel designed to hold the "multiple adjustable tensioned rollers." In addition, the schematic figure on page 3 shows brackets holding rollers around a portion of the circumference of the injector reel.

U.S. Patent 4,673,035 discloses a tubing straightening means 26 for straightening the tubing as it comes off the reel on its way down into the well. (col. 6, lines 64-68)

Therefore, claim 10 is rendered obvious in light of the above references.

Claim 11

A method of retrieving a length of coiled tubing and storing said tubing on a tubing storage spool comprising:
rotating a reel;
exerting pressure against more than 90° of the circumference of said reel while running said tubing around a portion of said circumference to exert pressure against said tubing to cause positive engagement of said tubing by said reel; and
routing said tubing off of said reel onto said tubing storage spool, said tubing storage spool mounted on a cradle vertically and horizontally adjustable to accept varying spool widths and diameters.

Claim 11 is a method claim employing structural elements of claim 1, claim 7 and claim 8. Vita brochure shows a reel that can be rotated and by means of manual or hydraulically adjustable rollers, the device exerts pressure against more than 90° of the circumference of the reel to cause positive engagement of the tubing by the reel.

90005703 = 042400

Therefore, claim 11 is obvious in light of the above references.

Discussion

The prior art references submitted with this request raise substantial new questions of patentability with regard to U.S. Patent 5,839,514. Reexamination in light of these newly presented references is therefore requested. Some of the claims are anticipated by these newly presented references under 35 U.S.C. §102. With regard to the point of view of one of ordinary skill in the relevant art at the time the alleged invention was made, a number of claims are unpatentable based upon the non-obviousness requirement of 35 U.S.C. §103.

A. Anticipation

35 USC §102 states in part: “A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or...

(g) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent...”

The Vita brochure and the Composite Catalog advertisement were published at least as early as May 7, 1996 and are therefore available as prior art printed publications under 35 USC §102 and §103. A reference is proven to be a “printed publication” “upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *In re Wyer*, 655 F.2d 221, 210 USPQ 790 (CCPA 1981) (quoting *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 743, 148 USPQ 537, 540 (SDNY 1966)) As evidenced by

the attached affidavits, the Vita brochure and the Composite catalog advertisement were made available to the public at a trade show where persons interested and ordinarily skilled in the subject matter of coiled tubing could locate the publications.

In order to establish a case of *prima facie* anticipation, a prior art reference must contain “every limitation of the claimed invention, either explicitly or inherently.” *In re Schreiber*, 44 U.S.P.Q.2d 1429, 1431 (Fed. Cir. 1997), citing *Glaxo Inc. v. Novopharm Ltd.*, 34 U.S.P.Q.2d 1565, 1567 (Fed. Cir. 1995).

“In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention “not novel” or “anticipated” within section 102, the stated test is whether a reference contains an “enabling disclosure”... .” *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). Pictures and drawings may be sufficiently enabling to put the public in the possession of the article pictured. Therefore, such an enabling picture may be used to reject claims to the article. *Jockmus v. Leviton*, 28 F.2d 812 (2d Cir. 1928). The pictures in the Vita brochure and the Composite catalog advertisement and the written description provided in the brochures provide sufficient information to enable one of ordinary skill in the art to practice the invention.

B. Obviousness

In order to establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art. *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991).

The Vita brochure and the Composite Catalog advertisement were made available to the public at least as early as May 7, 1996. The ‘514 patent was filed May 26, 1997, more than one

year after the date the brochure and advertisement were made available to the public. The brochure and advertisement are therefore available as prior art references under 35 USC §102 and §103.

Prosecution History

In the '514 application, the examiner allowed all pending claims in light of a telephone interview with applicant's counsel. The examiner issued the following statement of reasons for allowance:

“None of the references cited disclose an apparatus for injecting coiled tubing into the earth's surface, as set forth in the combinations of elements of claims 1-10, particularly including the representative limitations in claim 1 of “a tubing storage spool removably mounted in said frame at said back end...,” “a mast pivotally mounted on said frame” and “an injector reel rotatably mounted on said mast...” or the limitation in claim 10 [of] “a multiplicity hold down mechanism...comprising: a bracket...having an adjustment member for varying the pressure of a roller against said coiled tubing...attached to said injector reel.”

With regard to claim 1, the figure entitled “Self Loading/Handling of the reel with Unit Mast” on page 1 of the Composite Catalog advertisement, shows a tubing storage reel being loaded onto the frame, thus providing a tubing storage reel that is “removably” mounted on the frame. The text entitled “Operational Features” on page 1 of the Composite Catalog advertisement, states “Self-loading storage/work reels without crane, facilitating tubing reel change out.” This statement further clarifies that the tubing storage reel is meant to be removably mounted on the frame.

The figures on page 1 of the Composite catalog advertisement also show a “mast pivotally mounted on the frame” and an “injector reel rotatably mounted on the mast”. As indicated in the specification of the '514 patent, the hold down assembly mounted around a portion of the injector reel is shown in the Gipson '035 patent.

The limitations of claim 2 are present in the Vita brochure or in the alternative in Shaaban. The schematic drawing on page 4 of the Vita brochure shows an injector reel with brackets around a portion of the reel. The text on page 3 indicates that the tubing is held in place on the reel by “multiple adjustable tensioned rollers.” One of ordinary skill in the art could combine the teachings of the brochure with Shaaban to use a bracket with an adjustable member for varying the pressure of a roller against the tubing.


With regard to claim 10, the figure on page 4 of the Vita brochure, shows a series of brackets around the circumference of the injector reel and the text on page 3 under “Advantages of Fleet Injector Reel” explains that the “tubing is held in the injector groove by means of a multiple adjustable tensioned rollers.” The “multiple adjustable tensioned rollers” are analogous to the hold down assembly mounted around a portion of the circumference of the injector reel for exerting pressure against the tubing.

Page 1 of the Composite catalog advertisement shows a cradle that holds the tubing storage reel having two side frames with pivotable bullnose arms for receiving the tubing storage reel. On page 4, the text describes the cradle: “Tubing Reel Cradle: Side frames are hydraulically opened to facilitate easy change out of reels.”

Conclusion

One having ordinary skill in the art on May 26, 1996, is one who would have been working in the coil tubing industry for some period of time, doing research on optimum designs for straightening and injecting the generally inflexible tubing used in coiled tubing devices to overcome the inherent problems associated with the tubing in workover procedures. As we all know, this person of ordinary skill in the art is deemed to have read all of the prior art publications listed in this reexamination request.

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Respectfully submitted,

Cynthia G. Seal

713-334-5151